

Do all work on a separate piece of paper.

Solve each triangle. Round all angle values one decimal place and sides two decimal places.

1. $a = 3, b = 5, c = 7$

2. $B = 60^\circ, a = 3, c = 8$

3. $A = 36^\circ 20', C = 80^\circ, c = 964$

4. The bearing of a lighthouse from a ship was found to be $N37^\circ E$. After the ship sailed 2.5 miles due south, the new bearing was $N25^\circ E$. Find the distance between the ship and the lighthouse at each location?

5. The bearing from Atlanta to Macon is $S27^\circ E$, and the bearing from Macon to Augusta is $N63^\circ E$. An automobile traveling at 60 mph needs 1.25 hr. to travel from Atlanta to Macon and 1.75hr. to go from Macon to Augusta. Find the distance between Atlanta and Augusta.

6. The angle of elevation from a point on the ground to the top of a pyramid is 35.5° . The angle of elevation from a point 135ft. farther back to the top of the pyramid is 21.17° . Find the height of the pyramid.

7. A surveyor wishes to find the distance between two inaccessible points A and B. While standing at point C, she finds that the angle between the lines of sight to A and B is 46.3° . If AC is 350m long and BC is 286m long, find AB.

8. A passenger in an airplane at an altitude of 10km. sees two towns directly to the east of the plane. The angles of depressions to the two towns are 28° and 55° . How far apart are the towns?

Find the area of each triangle. Round answers two decimal places.

9. $B = 45^\circ, a = 2, c = 4$

10. $a = 6, b = 5, c = 8$

11. $a = 3, c = 2, B = 110^\circ$

Use $v = 3i - 4j$ and $u = -2i + 3j$ for the following problems.

12. Find $\|v\|$.

13. Find $3v - 2u$.

14. Find a unit vector that has the same direction as u .

15. Find the direction angle of v .

16. Find the component form of v if it makes a 150° with the positive x axis.

17. Find the component form of u if it makes a 45° with the positive x axis.